

Letter from the guest editors

Experimental studies are an essential component of software engineering research and practice. They provide the means necessary to understand, assess, control, and improve software management and development practices and their use of technologies. The results of experimental studies can be used to inform practitioners and researchers alike, and are an important mean for building a body of knowledge for software engineering.

The field of Experimental Software Engineering is now reaching its maturity. Its flagship event, the International Symposium on Empirical Software Engineering (ISESE) in its sixth edition has merged with the Metrics Symposium and is now known as The International Symposium on Empirical Software Engineering and Measurement (ESEM). The event is held together with a series of other events, into the context of the Experimental Software Engineering International Week, which include the International Software Engineering Research Network (ISERN) meeting, the International Doctoral Symposium on Empirical Software Engineering (IDoESE), and the International Advanced School on Empirical Software Engineering (IASESE). Regionally, the Experimental Software Engineering Latin American Workshop (ESELAW) in its fourth year aims at the improvement of the field among Latin American researchers by consolidating a research network. The field also has a flagship journal, *Empirical Software Engineering: An International Journal*, published by Springer. The journal is going to its 12th volume and has remarkably reached the third highest impact rate among all software engineering journals, behind only IEEE TSE and ACM TOSEM.

This Special Edition of the JBCS on Experimental Software Engineering reflects the active participation of the Brazilian scientific community in the area. Last year edition of ISESE (now ESEM) was held in Rio de Janeiro, with a very strong participation of Brazilian researchers in its organization and execution. The issue that you now have in hands has five papers. The first paper is authored by Prof. Victor Robert Basili, one of the fathers of the field and a longtime partner to the Brazilian Experimental Software Engineering Community. It is an invited paper motivated by his Keynote Speech at ISESE'2006 in Rio de Janeiro, Brazil. It deals with the history and prospects of the experimental software engineering field from the perspective of one of its founders. Appropriately entitled "The Past, Present, and Future of Experimental Software Engineering", the paper takes the reader through the evolution of the field over the last decades. It is an excellent material to those interested in working the area as well as to the JBCS general audience, who may want to get an insider perspective of the field.

The other four papers have been chosen by peer review. They were selected among 12 submissions, each one carefully reviewed by three reviewers. The program committee was composed of fourteen well-known experts in experimental software engineering from eight different countries.

The first paper, by Gokhale and Mullen, presents an experimental comparison of the growth characteristics of four code coverage measures (block, decision, c-use and p-use) as testing is increased. The experimental study confirms theoretical assumptions about the lognormal growth for the test coverage measures, and the paper goes on to show how this coverage growth function can be used to control the testing process and to guide decisions about when to stop testing.

The second paper, by Souza, Anquetil, and Oliveira, presents an experimental study in which a survey is used to establish what documentation artifacts are the most important for software maintainers. The goal of the survey is to identify the importance of documentation artifacts in helping to understand a system. Seventy six software practitioners were surveyed in a carefully planned and executed field study.

The third paper, by Sato, Bassi, Bravo, Goldman, and Kon, addresses the issue of tracking agile software projects. They use quantitative and qualitative methods to obtain data from source code, code repository, and team members of seven projects that used agile methods. The obtained results, and their analysis, are used to provide guidelines for the use of metrics to track agile software development projects.

The fourth paper, by Martins and Silva, proposes a methodology for defining, evaluating and improving software processes. A case study was performed to evaluate the methodology in the industry. Results on the improved process were gathered and analyzed. They reveal that the proposed methodology indeed helped the organization to improve its software product development process.

We close this letter by expressing our gratitude to all those who helped to produce this special issue. In particular, we thank Vic Basili for writing the invited paper, the staff of JBCS for supporting our work, and last, but not least, all the reviewers of this special edition. We acknowledge their wonderful comments on the submitted material.

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